

PATENT ABSTRACTS OF JAPAN

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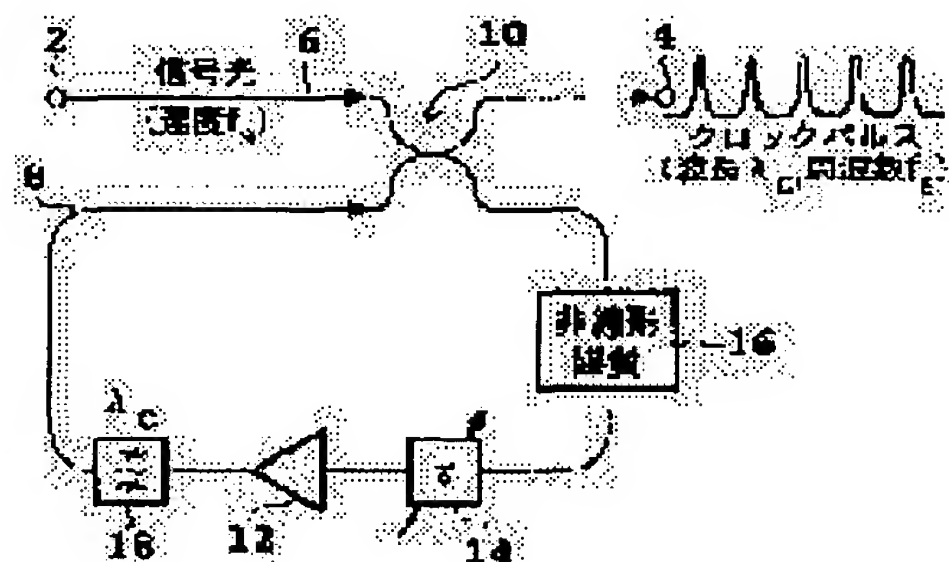
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(54) METHOD, APPARATUS AND SYSTEM FOR REPRODUCTION AND APPLICATION OF OPTICAL CLOCK

(57)Abstract:

PROBLEM TO BE SOLVED: To reproduce an optical clock without execution of opto/electric conversion and without depending upon the bit rate, pulse shape, etc., of signal light relating to a method, apparatus and system for reproduction and application of the optical clock.

SOLUTION: This information relates to the optical device for reproducing the optical clock. The optical device has an optical path 6 disposed between an input port 2 to which the signal light modulated by a frequency first f_s is supplied and an output port 4 and an optical loop 8 which is optically coupled to the optical path 6. The optical loop 8 includes an optical amplifier 12 which compensates the loss of the optical loop 8 in such a manner that laser oscillation is generated by the optical loop 8, an adjuster 14 which adjusts the optical path length of the optical loop 8 in such a manner that the frequency f_s attains integer times the inverse number of the cyclic period of the optical loop 8 and a nonlinear optical medium 16 for mode locking of the laser oscillation in accordance with the signal light. Four light wave mixing with the signal light as pumping light is induced by a cubic nonlinear effect and amplitude modulation is generated in the nonlinear optical medium. The optical clock is thus reproduced at the laser oscillation wavelength.



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